Research Article Journal of Orthoptera Research 2026, 35(2): 251–258

Snacking on snails: Novel prey and the distributions of *Polyspilota* praying mantids (Mantodea, Mantidae) in South Africa

Bianca Greyvenstein[1], Paul Janse van Rensburg[2], Terence Bellingan[3,4], Johnnie van den Berg[1], Kurt Jordaens[5], Riaan Stals[6], John Midgley[4,7]

1 Unit for Environmental Sciences and Management, North-West University, Potchefstroom, South Africa.
2 Department of Conservation Ecology and Entomology, Stellenbosch University, Stellenbosch, South Africa.
3 Department of Entomology and Arachnology, Albany Museum, Makhanda, South Africa.
4 Department of Zoology and Entomology, Rhodes University, Makhanda, South Africa.
5 Department of Biology, Royal Museum for Central Africa, Tervuren, Belgium.
6 South African National Collection of Insects, Agricultural Research Council, Roodeplaat, Pretoria, South Africa.
7 Department of Natural Sciences, KwaZulu-Natal Museum, Pietermaritzburg, South Africa.

Corresponding authors: Bianca Greyvenstein (biagrey90@gmail.com); Paul Janse van Rensburg (pjvrensburg18@gmail.com)

Academic editor: Matan Shelomi | Received 6 February 2026 | Accepted 8 March 2026 | Published 29 April 2026

https://zoobank.org/015D4C48-8315-43B4-81CC-1CBA1F556128

Citation: Greyvenstein B, Janse van Rensburg P, Bellingan T, van den Berg J, Jordaens K, Stals R, Midgley J (2026) Snacking on snails: Novel prey and the distributions of *Polyspilota* praying mantids (Mantodea, Mantidae) in South Africa. Journal of Orthoptera Research 35(2): 251–258. https://doi.org/10.3897/jor.35.187916

Abstract

Mantises predominantly prey on invertebrates but occasionally also on small vertebrates. We describe the distributions of the three *Polyspilota* species (Mantodea: Mantidae) that occur in South Africa, based on 466 specimen records from local and international museum collections as well as citizen science observations on iNaturalist. *Polyspilota* species are widespread along the subtropical eastern coastal and northern regions of South Africa. We report a novel feeding strategy for *Polyspilota aeruginosa* (Goeze, 1778) in which a late-instar nymph consumed a terrestrial snail in KwaZulu-Natal, South Africa. We additionally confirm similar feeding behavior in a captive female of the same species. Citizen scientist observations on iNaturalist have also recorded more than one *Polyspilota* species feeding on mollusks in South Africa, suggesting that terrestrial gastropod predation may be more common within this genus. An incidental observation of *P. aeruginosa* consuming a gecko further illustrates the trophic opportunism of this species. Feeding on snails may be related to the abundance of this resource within the combined range of the South African *Polyspilota* species, which lies in coastal areas and low-altitude regions with high atmospheric humidity.

Keywords

biodiversity observations, citizen science, opportunistic feeding, predatory behavior

Introduction

Mantodea (praying mantises) is a small but prominent insect order comprising approximately 2,400 species worldwide (Wieland and Schütte 2012, Wieland 2013). From South Africa, 157 mantis species belonging to 64 genera in 14 families have been recorded (Greyvenstein et al. 2023). Three of the 11 species of the genus *Polyspilota* Burmeister, 1838 are known from South Africa (Greyvenstein et al. 2023, Otte et al. 2025). These [sub-]species are *Polyspilota aeruginosa aeruginosa* (Goeze, 1778), *Polyspilota caffra caffra* Westwood, 1889 and *Polyspilota magna* Giglio-Tos, 1911

(Greyvenstein et al. 2023). The latter two species are suspected to be endemic to southern Africa (Kaltenbach 1996), whereas *P. aeruginosa* occurs in many sub-Saharan countries (Ehrmann 2002). *Polyspilota magna* is known only from the female holotype (type locality 'Cape of Good Hope,' South Africa) (Natural History Museum, Berlin, Germany, ZMHB) (Giglio-Tos 1911, 1927, Otte et al. 2025). Despite their conspicuousness, information on the distribution, ecology, behavior, and feeding strategies of *Polyspilota* species remains limited.

Mantises are primarily sit-and-wait predators that rely on crypsis and specialized raptorial forelimbs to capture prey. This, by default, makes these insects opportunistic and generalist hunters of smaller invertebrates. A wide range of unusual prey species has been reported for Mantodea. Several reports indicate that some mantids may also feed on small frogs (Nash 1962, Ridpath 1977, Costa-Pereira et al. 2010), lizards (Jehle et al. 1996, Mebs et al. 2016), small birds (Ridpath 1977, Nyffeler et al. 2017), mice (Nickle and Harper 1981, Ehrmann and Schmidt 1992), snakes (Kevan 1985), and even fish (Battiston et al. 2018). A mantis species often reported to feed on many kinds of prey and on unusual prey is the Afrotropical *Polyspilota aeruginosa* (Goeze, 1778). This mantid has, among many others, been observed to feed on a juvenile songbird (Beier 1969, Nyffeler et al. 2017) and to exhibit startle-threat behavior to deter the attack of a dark-capped bulbul *Pycnonotus barbatus* (Desfontaines, 1789) (Grandcolas and Desutter-Grandcolas 1998).

Copyright *Greyvenstein et al.* This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

In this paper, we report unusual feeding behavior by *Polyspilota* species preying on snails and slugs (Mollusca: Stylommatophora) in South Africa. To our knowledge, this is the first published record—globally—of snail eating among Mantodea in the wild. We also expand on this behavior as previously recorded in captivity (Reitze and Nentwig 1991). Beyond documenting predation on snails, we compiled incidental records of the feeding behavior of South African *Polyspilota* species to assess whether they exhibit broader opportunistic predation on atypical prey. Discovering novel feeding strategies is of biological interest as it would contribute to better understanding of the theoretical niche a species may occupy (Raes et al. 2008). Therefore, this study aims to help bridge this knowledge gap by providing insights into the distribution, behavior, and feeding strategies of *Polyspilota* in South Africa. Observations of mantids preying on snails also contribute to our broader understanding of the opportunistic feeding strategies of mantids.

Methods

A single mantid nymph was observed at the iGwalagwala Trail (St Lucia, KwaZulu-Natal, South Africa) feeding on a snail on 10 March 2022. Both the mantid and the snail were collected and accessioned into the KwaZulu-Natal Museum (accession numbers NMSA-Man 000475 and NMSA-Mol 0P2042, respectively). We also reared a *Polyspilota* nymph in captivity and provided snails as prey (Fig. 4). The aforementioned snails were identified by Dr. I.V. Muratov of the KwaZulu-Natal Museum, Pietermaritzburg, South Africa, using descriptions and the keys presented by Herbert and Kilburn (2004).

Distribution data of *Polyspilota* species in South Africa were obtained from specimen collections and the internet platforms Global Biodiversity Information Facility (GBIF) and iNaturalist. The distributions of the South African *Polyspilota* species were mapped with ArcGIS Pro by Esri (2025 California, USA, https://www.esri.com/en-us/home). Records of *Polyspilota* oothecae on iNaturalist were disregarded since *Polyspilota* oothecae cannot be reliably distinguished from those of other mantid species based only on external morphology. For iNaturalist records, additional information was recorded where available, including habitat type, whether the mantid was observed feeding, and what the prey was. Prey species were identified to the lowest possible taxonomic level (order). Unusual or infrequent prey species were included to provide a broader context for the trophic ecology and feeding strategies of the *Polyspilota* species. Museum records of *Polyspilota* specimens were taken from Greyvenstein et al. (2023), who compiled data from the following South African institutions: Ditsong National Museum of Natural History, Pretoria (TMSA), South African National Collection of Insects, Pretoria (SANC), National Museum, Bloemfontein (BMSA), Albany Museum, Makhanda (AMGS), Rhodes University, Department of Zoology and Entomology, Makhanda (RUDZ), Durban Natural Science Museum, eThekwini (DMSA), Iziko South African Museum, Cape Town (SAMC), and KwaZulu-Natal Museum, Pietermaritzburg (NMSA).

The most comprehensive taxonomic key to species of *Polyspilota* remains that provided by Giglio-Tos in his revision of Mantidae (Giglio-Tos 1927), which largely reiterates the species concepts and diagnostic characters presented in Giglio-Tos (1911). Some additional specimens and measurements were added for *P. aeruginosa* in the revision (Giglio-Tos 1927), while no additional information was added for *P. caffra* or *P. magna*. We used these keys to identify the South African *Polyspilota* individuals available on iNaturalist. The principal diagnostic feature discriminating these three *Polyspilota* species is the relative length of the pronotal metazone (Giglio-Tos 1911, 1927), as expressed in the ratio of the metazone to the prozone (Fig. 1, Table 1).

Additionally, *P. aeruginosa* and *P. caffra* have a distinct black spot on the ventral surface of the profemur between the profemoral base and the ungual groove, which is absent in *P. magna*. Since we did not encounter any mantis individuals corresponding morphologically to *P. magna*, we present only the diagnostic ratios for *P. aeruginosa* and *P. caffra* (Table 1). We identified to species level only those iNaturalist records in which individuals could be viewed dorsally and measured reliably. Other records were retained at the genus level. The metazone:prozone ratios clearly separated the two species involved without overlapping values among sexes. The ratio between pronotum length and pronotal width provided additional discrimination (Table 1).

In total, 466 records of *Polyspilota* spp. from South Africa, Eswatini, and Lesotho were available for analysis. Grouping these countries into a unit is standard practice in conservation assessments (Lee et al. 2025). Most of the records (351) were retrieved from iNaturalist, whereas 101 records originated from museum collections in South Africa and only 14 records were uniquely obtained from the GBIF (2025). The GBIF data included seven specimens from museum collections outside South Africa and seven DNA sequences recorded in the BOLD (Ratnasingham and Hebert 2007, Ratnasingham et al. 2024). The mantises in 140 iNaturalist observations could be identified as *P. aeruginosa* and 73 as *P. caffra*, but the mantises in an additional 138 observations could be confirmed only to the level of genus, mostly because the angle of the corresponding citizen scientist photos precluded the measurement of the diagnostic ratios of the pronotum.

Table 1. Morphometric ratios (range values) for ten males and ten females of *Polyspilota aeruginosa* and *P. caffra*. Ratios were calculated from dorsal photographs of specimens that could be measured reliably.

Species	Sex	Metazone: Prozone ratio	Pronotum length: Pronotum width ratio
P. aeruginosa	Male	2.73–3.08	3.17–3.53
P. aeruginosa	Female	2.50–2.79	2.72–3.15
P. caffra	Male	2.18–2.41	2.33–2.61
P. caffra	Female	2.05–2.31	2.33–2.61

Results

Distributions of Polyspilota *species*.—The distributions of the *Polyspilota* species in South Africa include the eastern seaboard and low-lying subtropical regions east of the eastern Great Escarpment, with only five records from the country's northeastern interior (Gauteng) (Fig. 2). *Polyspilota aeruginosa* and *P. caffra* are largely allopatric. *Polyspilota aeruginosa* mainly occurs in the northeastern coastal region of KwaZulu-Natal and the northern parts of the Limpopo and Mpumalanga provinces, whereas *P. caffra* has been recorded from the southeastern and southern coastal regions of the Eastern Cape and Western Cape provinces (Fig. 2). *Polyspilota aeruginosa* is most abundant in KwaZulu-Natal (70% of the records), followed by Limpopo and Mpumalanga (19%), the Western and Eastern Cape (6%), Eswatini (5%), and Gauteng (<1%). In contrast, *P. caffra* mostly occurs in the Western and Eastern Cape (87%), followed by Limpopo and Mpumalanga (9%) and KwaZulu-Natal (4%). *Polyspilota caffra* has not yet been

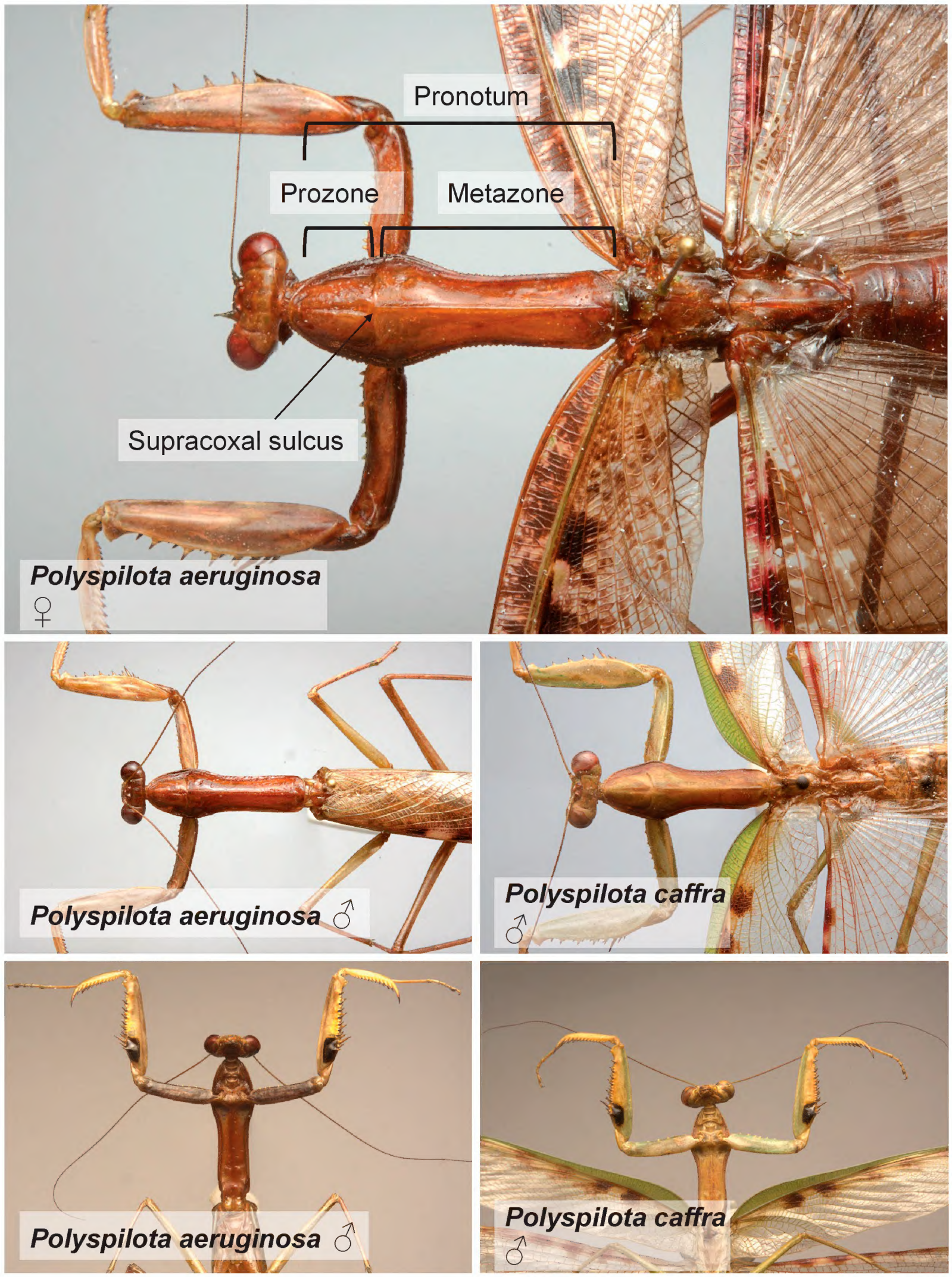

Fig. 1. Characteristics used to distinguish between *Polyspilota aeruginosa* and *Polyspilota caffra* in South Africa.

recorded from Gauteng or Eswatini. The distributions of the South African species of *Polyspilota* suggest that this genus is eurytopic, also occurring in suburban gardens, urban areas with semi-natural vegetation patches, vegetation patches between agricultural fields, and natural areas (Table 2).

Most records available to us (36%) were from urban areas with patches of semi-natural vegetation. *Polyspilota caffra* was observed more frequently (20%) in botanical gardens and national parks, while *P. aeruginosa* was more frequently recorded in urban areas with semi-natural vegetation patches (Table 2). In the entire dataset, the natural areas were predominantly subtropical coastal habitats, whereas the corresponding records from Mpumalanga and Limpopo were typical savanna habitats. All suburban gardens with observations were characterized by abundant trees and shrubs.

Polyspilota *species preying on mollusks*.—We believe that this study is the first report of any Mantodea feeding on any mollusks in the wild. The observation made under entirely natural circumstances was of a *P. aeruginosa* nymph feeding on a silky tailwagger snail *Kerkophorus inunctus* (Melvill & Ponsonby, 1899) (Stylommatophora: Urocyclidae) in foliage at St. Lucia, KwaZulu-Natal, South Africa (Fig. 3). The photographs provided in Fig. 4 are those

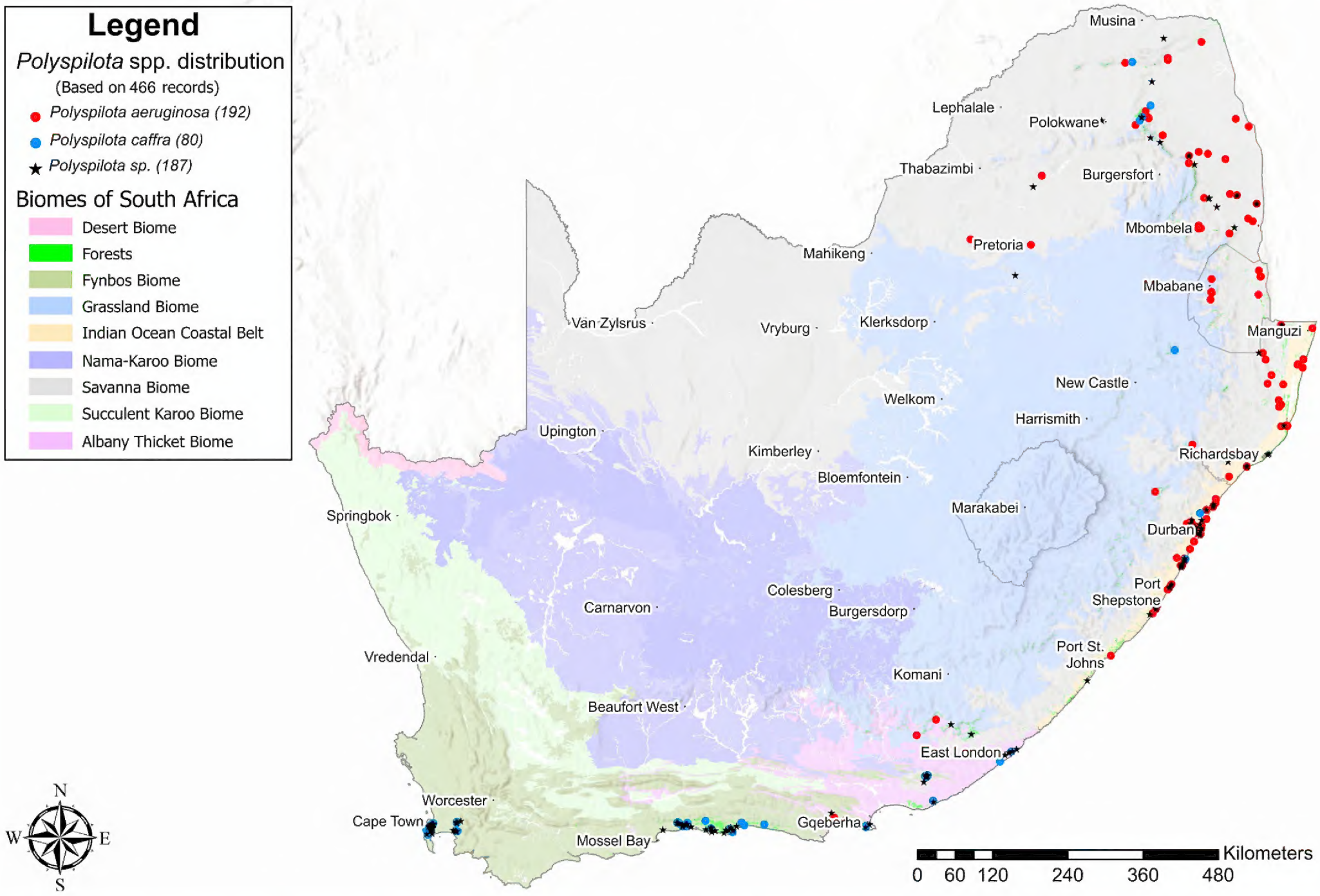

Fig. 2. Distributions of *Polyspilota* species in South Africa. Numbers in brackets are the number of distribution records per species.

of a *P. aeruginosa* nymph reared in captivity. This nymph readily accepted common garden snails *Cornu aspersum* (Müller, 1774) (Stylommatophora: Helicidae) as food. The mantid grabbed the snail before it fully retracted into its shell, firmly securing it with its raptorial forelegs and maintaining constant pressure to prevent escape. Feeding was focused on the exposed tissue, and once this was consumed, the mantid discarded the snail and its shell.

Of the almost 1,200 iNaturalist observations of *Polyspilota* mantises in South Africa as of February 2026, 17 showed mantises eating "typical" kinds of prey, whereas five showed them to feed on snails or slugs (Table 2). These observations included three *P. aeruginosa* individuals, of which two were nymphs and one was an adult male. Two of these observations were made in KwaZulu-Natal (Ballito and Scottburgh) and one in Limpopo (Hoedspruit). The remaining two observations were of a male *P. caffra* in George (Western Cape) and one of an undetermined species of *Polyspilota* nymph in Kelso (KwaZulu-Natal) (Table 2).

In addition to observations of mollusk-feeding mantises, several records of *Polyspilota* species consuming other invertebrates have been recorded (Table 2). We received photos of a female *P. aeruginosa* capturing and consuming a tropical house gecko *Hemidactylus mabouia* (Moreau de Jonnès, 1818) on 14 May 2025 in Leisure Bay, KwaZulu-Natal (Fig. 5). Similarly, four days prior to the latter observation, a *Polyspilota* cf. *caffra* female was recorded catching, dismembering, and eating a marbled leaf-toed gecko *Afrogecko porphyreus* (Daudin, 1802) (Table 2). Although predation on small vertebrates has previously been reported for several mantid species, this appears to be the first documented case of reptile predation by *P. aeruginosa* in South Africa.

Discussion

Although three *Polyspilota* species are suggested to occur in South Africa (Greyvenstein et al. 2023), none of the museum specimens or iNaturalist records examined in this study matched the diagnostic description of *P. magna* (Giglio-Tos 1911, 1927). It remains unclear whether this is, indeed, a valid species. It was described from a single specimen with similar proportions to those of *P. caffra*, the only notable difference being the absence of a black spot on the ventral surface of the profemur, anterior of the trochanter. Giglio-Tos (1911) subsequently indicated that this may have been a simple anomaly and that more individuals need to be examined to clarify the identity of this taxon.

This study confirms the distributions of the three South Africa *Polyspilota* species as furnished by Beier (1935) and Ehrmann (2002). In South Africa, the coastal distribution of this genus indicates that it occurs predominantly in eastern, subtropical regions and in the eastern savanna biome in the northern parts of the country. It is noteworthy that the apparent separation in the distributions of *P. aeruginosa* and *P. caffra* corresponds closely to the border between KwaZulu-Natal and the Eastern Cape province, which follows the Umtamvuna River gorge. This gorge is recognized as an important biogeographical barrier that limits gene flow in a range of taxa (Clancey 1994, Suinyuy et al. 2012). Vegetation differences across this boundary may additionally explain species distributions within the genus *Polyspilota*. KwaZulu-Natal supports more extensive and continuous forests, including scarp, mistbelt, and coastal-dune forests, due to higher rainfall, whereas

Fig. 3. *Polyspilota aeruginosa* nymph feeding on silky tailwagger snail (*Kerkophorus inunctus*) in the wild (iGwalagwala Trail, St Lucia, KwaZulu-Natal). Photographed by Terence Bellingan.

Table 2. Observations on iNaturalist of *Polyspilota* species feeding on a variety of prey items in different habitats across South Africa.

ID	Locality	Species	Observation date	iNaturalist observations (URL)	Prey	Habitat
1	George (WC)	*P. caffra*	Feb. 23, 2012	https://www.inaturalist.org/observations/10981264	Stylommatophora (Snail)	Urban garden
2	Hoedspruit (LP)	*P. aeruginosa*	Dec. 27, 2012	https://www.inaturalist.org/observations/11362735	Stylommatophora (Snail)	Vegetation patch between agricultural fields
3	Kelso (KZN)	*Polyspilota* sp.	March 18, 2017	https://www.inaturalist.org/observations/11294262	Stylommatophora (Snail)	Vegetation patch between agricultural fields
4	Scottburgh (KZN)	*P. aeruginosa*	Dec. 25, 2017	https://www.inaturalist.org/observations/9262491	Stylommatophora (Snail)	Urban garden
5	Ballito (KZN)	*P. aeruginosa*	Oct. 24, 2022	https://www.inaturalist.org/observations/140062090	Stylommatophora (Snail)	Urban area with semi-natural vegetation patch
6	Scottburgh (KZN)	*P. aeruginosa*	Dec. 12, 2013	https://www.inaturalist.org/observations/10959186	Lepidoptera (Moth)	Urban garden
7	Scottburgh (KZN)	*Polyspilota* sp.	June 15, 2014	https://www.inaturalist.org/observations/10943806	Lepidoptera (Larvae)	Urban garden
8	Scottburgh (KZN)	*P. aeruginosa*	April 17, 2017	https://www.inaturalist.org/observations/11315934	Lepidoptera (Butterfly)	Urban garden
9	Scottburgh (KZN)	*P. aeruginosa*	May 17, 2020	https://www.inaturalist.org/observations/46228027	Hymenoptera (Carpenter bee)	Urban garden
10	Port Shepstone (KZN)	*Polyspilota* sp.	March 20, 2020	https://www.inaturalist.org/observations/42889595	Orthoptera (Grasshopper)	Urban area with semi-natural vegetation patch
11	Cape Town (WC)	*Polyspilota* sp.	April 6, 2021	https://www.inaturalist.org/observations/81688768	Blattodea (Cockroach)	Urban garden
12	George (WC)	*P. caffra*	March 30, 2022	https://www.inaturalist.org/observations/109916486	Hymenoptera (Wasp)	Botanical garden
13	Hout Bay (WC)	*P. caffra*	May 3, 2023	https://www.inaturalist.org/observations/159403840	Hymenoptera (Honey bee)	Urban garden
14	Lower Sabie Camp (MP)	*Polyspilota* sp.	April 3, 2024	https://www.inaturalist.org/observations/205351505	Lepidoptera (Moth)	Urban area in National Park
15	Palm Beach (KZN)	*Polyspilota* sp.	March 1, 2025	https://www.inaturalist.org/observations/263491913	Lepidoptera (Larvae)	Urban area with semi-natural vegetation patch
16	Palm Beach (KZN)	*Polyspilota* sp.	April 21, 2025	https://www.inaturali6st.org/observations/272133207	Hymenoptera (Honey bee)	Urban area with semi-natural vegetation patch
17	Port Edward (KZN)	*P. aeruginosa*	May 12, 2025	https://www.inaturalist.org/observations/280592015	Diptera (Fly)	Urban area with semi-natural vegetation patch

the Eastern Cape contains smaller, fragmented forest patches embedded in a landscape of grassland and thicket (e.g., Parker et al. 2022). Most *P. caffra* records are from the Western Cape province, which is dominated by the Fynbos biome.

This study is the first to report the novel snail-eating behavior of *Polyspilota* mantises in the wild as well as confirmation of this behavior in captive mantids. Laboratory studies, which included six Mantodea species, have suggested that *P. aeruginosa* has an unusually broad diet and is the most generalist feeder (Reitze and Nentwig 1991). This species ate 75% of all the prey species it was offered in captivity, including two slug and one snail species. The other five mantid genera had an acceptance rate of between 43% and 69% across all prey items, and a particular low acceptance rate of snails and slugs which the authors attributed to their slow movement (Reitze and Nentwig 1991). The field observations reported here complement these experimental findings by demonstrating that *Polyspilota* mantises freely exploit gastropod prey under natural field conditions.

The sit-and-wait predatory strategy of Mantodea relies on striking prey in response to visual cues, particularly prey movement (Gelperin 1968). Mantises attempt to catch prey when several visual stimulus parameters are met (Prete et al. 2002, 2011). These include the overall size of prey, its direction of movement, and its apparent speed. Slower-moving targets generally elicit fewer strikes (Prete et al. 2011). Hence, it is unusual for slow-moving prey, such as slugs and snails, to trigger mantises into action. However, the strike speed and structure of *P. aeruginosa* have been reported to vary depending on the movement of the prey, with slower prey associated with slower tibial extension and more frequent pauses (Rossoni and Niven 2020). This behavioral flexibility allows timing adjustments of the strike, particularly the final downward sweep of the tibia (Rossoni and Niven 2020). This behavioral adaptation, which has only been reported in three other mantid species, could allow members of the *Polyspilota* genus to capture slow-moving prey such as snails and slugs.

It remains unclear whether snail feeding is opportunistic or whether it represents a more common, hitherto overlooked, component of the diet of these mantises. This behavior could also be a response to unfavorable conditions and the associated scarcity of prey. Terrestrial snails are generally abundant in moist environments (Chiba 2007), which corresponds well with the distribution of *Polyspilota* species in South Africa. These observations highlight the opportunism of mantids also reported by Reitze and Nentwig (1991), suggesting that their diet composition may be strongly influenced by local resource availability and climatic conditions that promote gastropod abundance.

The catching and eating of snails by *Polyspilota* mantises based on observations in South Africa suggest that this remains the only genus observed to do so in the wild. It was suggested by Henríquez-Piskulich et al. (2023) that feeding on snails might be uncommon among mantises due to the mucus coating on the bodies and shells of snails, reflecting light. Most studied mantises have been reported to be less likely to track and strike at glossy

Fig. 4. *Polyspilota aeruginosa* female nymph feeding on common garden snail, *Cornu aspersum* in captivity. Photographed by Paul Janse van Rensburg.

Fig. 5. Female *Polyspilota aeruginosa* eating a tropical house gecko (Leisure Bay, KwaZulu-Natal). Photographed by Gwenikè Lawrance.

targets (Henríquez-Piskulich et al. 2023) and slow-moving prey (Gelperin 1968, Reitze and Nentwig 1991, Prete et al. 2011). These factors do not seem to deter *Polyspilota* mantises from catching and eating snails, but the mechanisms for this remain unknown. Opportunism or instinct may have facilitated the development of this novel feeding strategy, as highlighted by the observation of a female *P. aeruginosa* catching and eating an entire gecko (Fig. 5).

The nutritional content of snails generally indicates that they contain much more than mucus, moisture, and fat. Rygało-Galewska et al. (2022) suggested that the common garden snail (*Cornu aspersum*), on average, consists of 78–83 g of water, 11–17 g of protein, and only 0.4–1.2 g of fat per 100 g. The protein of *C. aspersum* was also indicated to be highly digestible, and 100 g of this snail tissue contains approximately 30% of the daily dietary essential amino acid requirements for humans (Surówka et al. 2025). Snails also contain minerals such as calcium, sodium, potassium, magnesium, and iron (Nkansah et al. 2021, Pathak et al. 2025).

There are, however, risks to mantises eating snails. For example, snails are known to be the intermediate hosts of various parasitic nematodes and trematodes (Lu et al. 2018). Although these parasites are known to infest other terrestrial insects, limited information exists about parasites of mantids. The only parasite known to infest *P. aeruginosa* is a nematode horsehair worm, *Chordodes ferox* Camerano, 1897 (Nematomorpha: Gordiida) (Schmidt-Rhaesa and Perissinotto 2016). The unusual snail-eating behavior of *Polyspilota* reported in this study generates new avenues for future research into mantid feeding strategies and the possible risks mantids could be exposed to due to their interactions with terrestrial gastropods and their related parasites.

Conclusion

These observations confirm that *Polyspilota* mantids are opportunistic feeders capable of exploiting novel locally available food resources. Feeding on mollusks holds the benefit of high-protein and mineral-rich prey, but it also increases the risk of parasite infestation. Any such potential trade-off remains to be explored. Knowledge about the ecology and behavior of *Polyspilota* species is limited, as is knowledge of most South African Mantodea and their ecobiology and lifestyles.

Acknowledgements

We thank Dr. Igor V. Muratov for identifying our snail specimens. We also thank Gwenikè Lawrance from Leisure Bay in KwaZulu-Natal for sharing the photos she took of the female *Polyspilota aeruginosa* eating the gecko and for permission to publish them. We are awestricken about the brilliant southern African iNaturalist community, the true natural history explorers of our era, and more than grateful for their contributions. RS acknowledges Public Good funding from the South African Departments of Science, Technology and Innovation, and of Agriculture (National).

References

Battiston R, Puttaswamaiah R, Manjunath N (2018) The fishing mantid: predation on fish as a new adaptive strategy for praying mantids (Insecta: Mantodea). Journal of Orthoptera Research 27: 155–158. https://doi.org/10.3897/jor.27.28067

Beier M (1935) Mantodea Fam. Mantidae Subfam. Mantinae. In: Wytsman P (Ed.) Genera Insectorum 203. Desmet-Verteneuil, Brussels, 1–32.

Beier M (1969) Mantodea (Dictyoptera) von Angola. Publicações Culturais da Companhia de Diamantes de Angola 81: 13–44.

Burmeister H (1838) Fangheuschrecken. Mantodea. In: Handbuch der Entomologie. Zweiter Band, Besondere Entomologie, Zweite Abtheilung. Kaukerfe, Gymnognatha (Erste Hälfte; vulgo Orthoptera). Enslin, Berlin, 517–552.

Chiba S (2007) Species richness patterns along environmental gradients in island land molluscan fauna. Ecology 88: 1738–1746. [+ Supporting Appendices A–B] https://doi.org/10.1890/06-1735.1

Clancey PA (1994) Combined biogeographic role of river valleys and aridity in southern African bird distribution. Durban Museum Novitates 19: 13–29. https://hdl.handle.net/10520/AJA0012723X_1693

Costa-Pereira R, Martins FI, Sczesny-Moraes EA, Brescovit A (2010) Predation on young treefrog (*Osteocephalus taurinus*) by arthropods (Insecta, Mantodea and Arachnida, Araneae) in Central Brazil. Biota Neotropica 10: 469–472. https://doi.org/10.1590/S1676-06032010000300042

Ehrmann R, Schmidt H (1992) Etruskerspitzmaus (*Suncus etruscus*) als Beute einer Gottesanbeterin (*Mantis religiosa*). Säugetierkundliche Informationen 3: 460–461.

Ehrmann R (2002) Mantodea. Gottesanbeterinnen der Welt. Natur und Tier-Verlag, Münster, Germany, 519 pp.

Esri (2025) ArcGIS Pro, version 3.2. Environmental Systems Research Institute, Redlands, CA, USA. https://www.esri.com/en-us/arcgis/products/arcgis-pro

GBIF (2025) Global Biodiversity Information Facility. https://www.gbif.org. [Accessed on 2025-10-26]

Gelperin A (1968) Feeding behaviour of the praying mantis: a learned modification. Nature 219: 399–400. https://doi.org/10.1038/219399a0

Giglio-Tos E (1911) Mantidi Esotici. II. Le *Polyspilote*. Bullettino della Società Entomologica Italiana 42: 3–38.

Giglio-Tos E (1927) Orthoptera: Mantidae Das Tierreich 50.Walter de Gruyter & Co., Berlin, 707 pp.

Goeze JAE (1778) Entomologische Beyträge zu des Ritters Linné zwölften Ausgabe des Natursystems. Vol. 2. Weidmanns Erben und Reich, Leipzig. https://doi.org/10.5962/bhl.title.45974

Grandcolas P, Desutter-Grandcolas L (1998) Successful use of a deimatic display by the praying mantid *Polyspilota aeruginosa* against the yellow-vented bulbul. Annales de la Société Entomologique de France (N.S.) 34: 335–336. https://doi.org/10.1080/21686351.1998.12277905

Greyvenstein B, Van den Berg J, Du Plessis H (2023) Documenting Mantodea species in South African museum collections and an updated species list. Biodiversity Data Journal 11: e102637. https://doi.org/10.3897/BDJ.11.e102637

Henríquez-Piskulich P, Stuart-Fox D, Elgar M, Marusic I, Franklin AM (2023) Dazzled by shine: gloss as an antipredator strategy in fast moving prey. Behavioral Ecology 34: 862–871. https://doi.org/10.1093/beheco/arad046

Herbert D, Kilburn D (2004) Field guide to the land snails and slugs of eastern South Africa. Natal Museum, Pietermaritzburg, South Africa, 336 pp.

Jehle R, Franz A, Kapfer M, Schramm H, Tunner HG (1996) Lizards as prey of arthropods: praying mantis *Mantis religiosa* (Linnaeus, 1758) feeds on juvenile Sand Lizard *Lacerta agilis* Linnaeus, 1758 (Squamata: Sauria: Lacertidae). Herpetozoa 9: 157–159.

Kaltenbach AP (1996) Unterlagen für eine Monographie der Mantodea des südlichen Afrika: 1. Artenbestand, geographische Verbreitung und Ausbreitungsgrenzen (Insecta: Mantodea). Annalen des Naturhistorischen Museums in Wien 98B: 193–346.

Kevan DKMcE (1985) The mantis and the serpent. The Entomologist's Monthly Magazine 121: 1–8.

Lee ATK, Rose S, Banda S, Bezeng SB, Maphalala MI, Maphisa DH, Smit-Robinson HA (2025) The 2025 Red Data Book of Birds of South Africa, Lesotho and Eswatini. BirdLife South Africa, Johannesburg, South Africa, 169 pp.

Lu X-T, Gu Q-Y, Limpanont Y, Song L-G, Wu Z-D, Okanurak K, Lv Z-Y (2018) Snail-borne parasitic diseases: an update on global epidemiological distribution, transmission interruption and control methods. Infectious Diseases of Poverty 7: 28. https://doi.org/10.1186/s40249-018-0414-7

Mebs D, Yotsu-Yamashita M, Arakawa O (2016) The praying mantis (Mantodea) as predator of the poisonous red-spotted newt *Notophthalmus viridescens* (Amphibia: Urodela: Salamandridae). Chemoecology 26: 121–126. https://doi.org/10.1007/s00049-016-0211-3

Nash KM (1962) Mantis eats frog. The Victorian Naturalist 79(1): 11.

Nickle DA, Harper J (1981) Predation on a mouse by the Chinese mantid *Tenodera aridifolia sinensis* Saussure (Dictyoptera: Mantoidea). Proceedings of the Entomological Society of Washington 83: 801–802.

Nkansah MA, Agyei EA, Opoku F (2021) Mineral and proximate composition of the meat and shell of three snail species. Heliyon 7: e08149. https://doi.org/10.1016/j.heliyon.2021.e08149

Nyffeler M, Maxwell MR, Remsen JV (2017) Bird predation by praying mantises: A global perspective. The Wilson Journal of Ornithology 129: 331–344. https://doi.org/10.1676/16-100.1

Otte D, Spearman L, Stiewe M (2025) Mantodea Species file online. Version 5.0/5.0. http://Mantodea.SpeciesFile.org [Accessed on 2025-12-12]

Parker DM, Junkuhn K, Barker NP (2022) Note on the small mammals of small, isolated forest patches in the Eastern Cape, South Africa. African Journal of Ecology 60: 784–787. https://doi.org/10.1111/aje.12966

Pathak CR, Luitel H, Pakhrin WT, Syahrulawal L, Sadaula GP, Bhandari DR, Koirala S, Khanal P (2025) Nutritional potential of the giant African land snail (*Achatina fulica*) as a sustainable protein source for food and feed. Journal of Agriculture and Food Research 23: 102179. https://doi.org/10.1016/j.jafr.2025.102179

Prete FR, Hurd LE, Branstrator D, Johnson A (2002) Responses to computer-generated visual stimuli by the male praying mantis, *Sphodromantis lineola* (Burmeister). Animal Behaviour 63: 503–510. https://doi.org/10.1006/anbe.2001.1955

Prete FR, Komito JL, Dominguez S, Svenson G, López LY, Guillen A, Bogdanivich N (2011) Visual stimuli that elicit appetitive behaviors in three morphologically distinct species of praying mantis. Journal of Comparative Physiology A 197: 877–894. https://doi.org/10.1007/s00359-011-0649-2

Raes A, Lefebvre L, Jordaens K (2008) First report of fishing in the European Blackbird *Turdus merula*. Acta Ornithologica 43: 231–234. https://doi.org/10.3161/000164508X395351

Ratnasingham S, Hebert PDN (2007) BOLD: The Barcode of Life Data System (http://www.barcodinglife.org). Molecular Ecology Notes 7: 355–364. https://doi.org/10.1111/j.1471-8286.2007.01678.x

Ratnasingham S, Wei C, Chan D, Agda J, Agda J, Ballesteros-Mejia L, Ait Boutou H, El Bastami ZM, Ma E, Manjunath R, Rea D, Ho C, Telfer A, McKeowan J, Rahulan M, Steinke C, Dorsheimer J, Milton M, Hebert PDN (2024) BOLD v4: A centralized bioinformatics platform for DNA-based biodiversity data. In: DeSalle R (Ed) DNA barcoding. Methods and protocols. Humana Press, Springer Nature, New York, USA, 403–441. https://doi.org/10.1007/978-1-0716-3581-0_26

Reitze M, Nentwig W (1991) Comparative investigations into the feeding ecology of six Mantodea species. Oecologia 86(4): 568–574. https://doi.org/10.1007/BF00318324

Ridpath MG (1977) Predation on frogs and small birds by *Hierodula werneri* (Giglio-Tos) (Mantidae) in tropical Australia. Journal of the Australian Entomological Society 16: 153–154. https://doi.org/10.1111/j.1440-6055.1977.tb00077.x

Rossoni S, Niven JE (2020) Prey speed influences the speed and structure of the raptorial strike of a 'sit-and-wait' predator. Biology Letters 16: 20200098. https://doi.org/10.1098/rsbl.2020.0098

Rygało-Galewska A, Zglińska K, Niemiec T (2022) Edible snail production in Europe. Animals 12(20): 2732. https://doi.org/10.3390/ani12202732

Schmidt-Rhaesa A, Perissinotto R (2016) *Chordodes ferox*, a new record of horsehair worms (Nematomorpha, Gordiida) from South Africa. ZooKeys 566: 1–11. https://doi.org/10.3897/zookeys.566.6810

Suinyuy TN, Donaldson JS, Johnson SD (2012) Geographical variation in cone volatile composition among populations of the African cycad *Encephalartos villosus*. Biological Journal of the Linnean Society 106: 514–527. https://doi.org/10.1111/j.1095-8312.2012.01905.x

Surówka K, Ligaszewski M, Szymczyk B, Anthony B (2025) Amino acid profile and nutritional quality parameters of small brown snail (*Cornu aspersum aspersum*) edible parts protein from commercial production in field pens. Journal of Food Composition and Analysis 140: 107221. https://doi.org/10.1016/j.jfca.2025.107221

Westwood JO (1889) Revisio insectorum familiae mantidarum, speciebus novis aut minus cognitis descriptis et delineatis. Gurney & Jackson, London.

Wieland F, Schütte K (2012) Mantodea. In: McGraw-Hill Encyclopedia of Science & Technology. Eleventh Edition. McGraw-Hill, New York, 407–409.

Wieland F (2013) The phylogenetic system of Mantodea (Insecta: Dictyoptera). Species, Phylogeny and Evolution 3.1: 3–222. https://doi.org/10.17875/gup2013-711